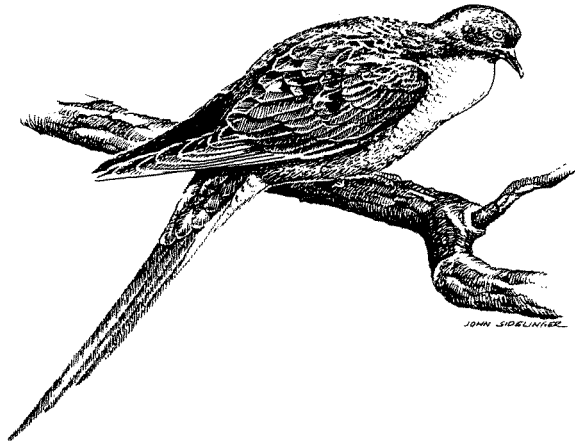


# Natural Resources— Into the 20th Century

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At the beginning of the 20th century descendants of the early European settlers who first colonized the coasts of Virginia, the Carolinas, and Georgia were established throughout the region. Most all of the native people had been displaced. Cotton was king. The mature forests were being eliminated. And wildlife populations had been seriously depleted by the burgeoning human population.

A few species, such as the ivory-billed woodpecker and the passenger pigeon, never recovered from exploitation and have become extinct. Game animals, such as wild turkey and white-tailed deer, had been seriously reduced and eliminated from most of their former range. Generally, because of interactions with man, the large carnivores, such as black bears and cougars, remained as viable populations only in a few places. With most other species, such as the myriad of birds, reptiles, and amphibians, there has been too little information to assess their status accurately.

In this era, land uses and the people and their distribution would affect forests and wildlife of the region. After World War I, the status of cotton, which had ruled

the southern world, wavered and then toppled. Demand for the South's cotton declined due to new competition in production from parts of the western United States and foreign countries, and the development of synthetic fibers (Cooper and Terrill 1990). Also, there were problems with agricultural

depressions and depaupered soil as a result of years of cultivation. Land use for crops and pasture peaked in the early 1920s and declined afterwards as farm land was abandoned (USDA Forest Service 1988). From 1929 to 1939 the main land use, cotton, decreased by about half (Cooper and Terrill 1990:671).

## EARLY CONSERVATION

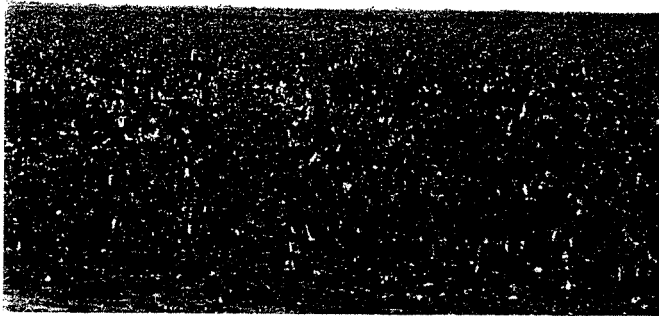
At the turn of the last century about 100 years ago things were bleak for southern forests and their wildlife. But the stage was being set for conservation activities which would help restore much of the southern forests in some form and some wildlife species.

**Federal initiatives.**—Early efforts were made to establish National Forests and manage them for multi-

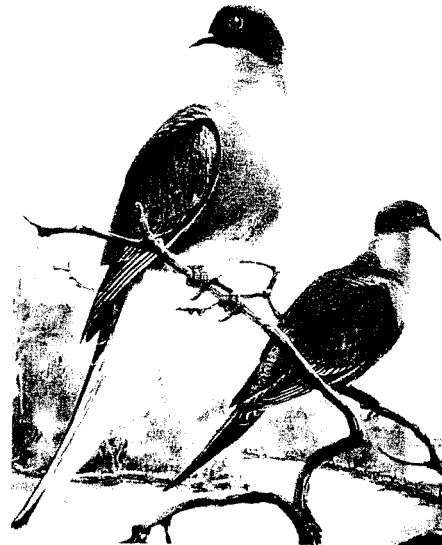
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At the beginning of the 20th century most of the natives had been displaced and mature forests were being eliminated (A. M Staten, B. Texas Parks and Wildlife).



Cotton was king (J. Dickson).



In this era of natural resources exploitation a few species, such as the passenger pigeon, became extinct (A. Brooks, Cornell Lab of Ornithology).



Wildlife populations such as the wild turkey had been seriously depleted by a burgeoning human population.



Remnant populations of exploited species, such as turkey, deer, and bear, were relegated to remote areas such as mountains and swamps.

ple resources (Dickson 1985). The forestry reserves were established in 1897 to protect timber and water, and this was interpreted quite broadly to include multiple resources. Cooperative forestry was established to assist in the forest management of private land and a research arm of the Division of Forestry was established early in this century.

The role of federal forestry expanded early in the 20th century. In 1905 the forest reserves were transferred from the Department of Interior to the Department of Agriculture, and the Bureau of Forestry became the U.S. Forest Service. Later, managing federal land for multiple products and providing multiple services was confirmed and expanded; and the guiding tenet of managing National Forests for the greatest good of the greatest number in the long run was developed (Steen 1976).

The Weeks Law of 1911 authorized the purchase of forests in watersheds of navigable streams, which was the justification for acquisition for the National Forests in the South. This legislation and the Clark-McNary Act of 1924 strengthened cooperative forestry. Protection of remnant populations of game animals was an early consideration. Between 1916 and 1948, 17 National Game Refuges totalling 514,556 acres were established on southern National Forests (B. Sanders, pers. commun.). The Pisgah Game Refuge in North Carolina became a deer research center and provided deer for stocking other areas throughout the South.

In the 1930s most land in the South had supported crops of cotton for years, and erosion and topsoil loss was a major problem throughout. To address this problem in 1935 the Soil Conservation Service was established to promote soil protection and reforestation (Cooper and Terrill 1990).

**Wildlife management.**—After World War I states begin taking stock of the dire status of their game populations and limited efforts were initiated to address the problems. The first significant wildlife publications were produced. In 1933, Aldo Leopold's *Game Management* established wildlife management principles and in 1932 Herbert Stoddard published a complete treatise on Bobwhite Quail from his research which still stands as the authoritative text today. A major boost to these efforts was the passage of the Federal Aid in Wildlife Restoration (or Pittman-Robertson Act) of 1937. This legislation imposed a tax on firearms and ammunition that was matched (3:1) with individual state money, and used as the main funding vehicle for state wildlife restoration programs. Wildlife management as a profession was developing

at about the same time. The Wildlife Society was formed, state governments were forming agencies responsible for wildlife, universities were initiating wildlife education programs, and wildlife research was underway. Many of the first research efforts were surveys of the status of game populations. But the demands of World War II on the people of the region essentially put wildlife restoration and other natural resource programs on hold until after the major conflicts in Europe and the Pacific had been settled.

## MIDCENTURY

After the War the troops returned home, interest in wildlife problems was rekindled, and management efforts were instilled with new vigor. The story of a few key species illustrates some wildlife management successes.

**Wild turkey.**—The first comprehensive survey of the 13 southeastern states in 1949 revealed an estimated regional population of slightly over 100,000 wild turkeys (Mosby 1949). The first efforts at restoring wild turkeys to the South, and what seemed to be the logical approach, was the raising of game farm turkeys for release in the wild. But mother nature was too harsh for the pen-raised turkeys. Predation in the wild was high and survival of adult turkeys was low. Also, the pen-raised hens were not able to pass on critical survival skills to their poults and reproductive success was minimal. What initially seemed like a good idea was a failure throughout the region. But what did work was the capture of wild turkeys from the wild and immediate transfer to the wild. Beginning about 1950 the cannon net, which had been developed for capturing waterfowl,



Adaptation of the cannon-propelled net to capture wild turkeys proved useful in restoring this species (D. Dyke).

was adapted for and used to capture and release wild turkeys (Hurst and Dickson 1992). Through intensive trapping effort, better protection, and improved habitat the wild turkey has been restored throughout the South and number now some 1.5 million wild turkeys. The annual harvest now region wide is approximately 200,000, which is more than the total population several years ago (Kenamer and Kenamer 1996).

**White-tailed deer.**—The white-tailed deer story is similar to that of the wild turkey; restoration has been successful throughout the region. White-tailed deer populations remained at low levels until after World War II, when restoration efforts were initiated (Newsom 1984). Dramatic results were realized through trapping and transplanting deer, enhanced habitat conditions, and improved protection. By 1969, the estimated population of deer in the coastal plain states was 1.7 million, with an annual harvest of 266,000, and by 1975 the estimated population (4.3 million) and harvest (557,000) had doubled (Newsom 1984).

**Environmental legislation.**—Multiple use of National Forests, environmental awareness, and maintaining wildlife populations at viable levels on federal land were confirmed by legislation in the 1960s and 1970s (for example, the Multiple Use-Sustained Yield Act of 1960). The Wilderness Act of 1964 officially sanctioned the incorporation of land into the wilderness system. The National Environmental Policy Act (1969) required federal agencies to consider effects of their

actions on the environment. The Endangered Species Act of 1973 mandated protection for threatened or endangered species. The National Forest Management Act (1976) provided for a coordinated land management planning process with public participation. It required that wildlife be considered in each forest plan for each administrative unit, that habitat for animals be maintained, and that management indicator species be monitored. The net result of this collective legislation on wildlife management on National Forests was that, in general, the Forest Service was charged with maintaining viable populations of plant and animal species, promoting recovery for threatened and endangered species, and providing habitat for species of high demand, such as game animals (Nelson et al. 1983).

**Federal land management.**—On federal land, even-aged management became practice in the 1960s and the featured species concept of wildlife management was incorporated in the 1970s (B. Sanders, pers. commun.) As a result of the National Forest Management Act of 1976 the Forest Service was required to develop Land Management Plans for each National Forest and in the 1980s integrated the use of management indicator species as indices of wildlife communities. Later in the 1990s, enhanced environmental and landscape scale concern fostered Ecosystem Management.

**People and the forests.**—After World War II there were significant changes in the people and their use of the land. Southerners left the farm, and what had been a

After World War II what had been a rural South became mostly an urban South. By 1980 only about 3% of southerners lived on farms. By 1952, area in timberland had increased to about 60% and has remained relatively constant since then (C. Taylor).



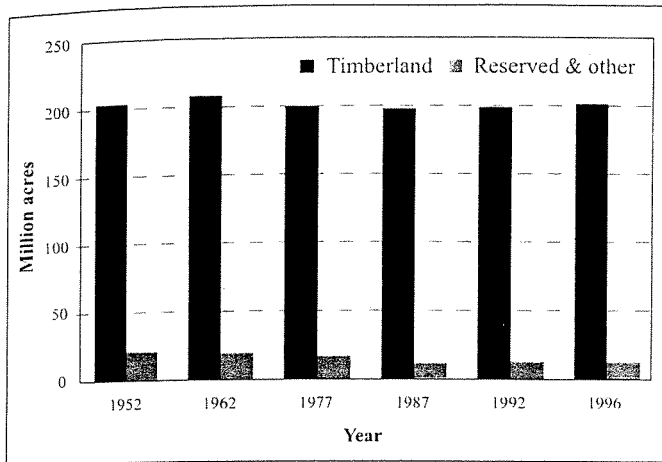


Fig. 1. Area of forestland in the South, 1952-1996.

rural South became a mostly urban South. In 1940 40% of southerners (15.6 million) farmed, compared to only 15% for the rest of the U.S. Forty years later only 3-4% of southerners (1.6 million) farmed. From the beginning to the end of this period 14 million fewer people lived on farms and the number of farms declined from 2.9 million to 949,000 (Cooper and Terrill 1990:763). And more diverse products were being produced from the land that remained in agriculture. Beef cattle, poultry, soybeans, tobacco, and dairy products became the leading farm products (Cooper and Terrill 1990:763). The land of cotton had become the land of pines, grass, cattle, and soybeans.

After World War II as cropland in the South was abandoned, the area in timberland (forests not withdrawn from commercial timber production and capable of producing traditional wood products) increased (USDA Forest Service 1988). By 1952 about 3/5 of the land area (about 200 million acres) was classified as timberland; and the proportion of forested land has changed little since then (Fig. 1). Southern deforested land was converted mainly to crops, pasture, and urban associated uses, but at the same time other land reverted or was planted to forest. Forestland losses were the most severe in Florida where large human population increases have usurped forest land, and in Arkansas and Louisiana where large areas of bottomland hardwoods have been converted to cropland.

During the period 1952 to 1996, distribution and area occupied by forest types in the South changed also (Sheffield and Dickson 1998). The loss of bottomland hardwoods was substantial, particularly from about 1950 to 1970 in the Mississippi Delta. By 1996 area in this alluvial type had declined to 30.2 million acres. Much of this land went into soybean production.

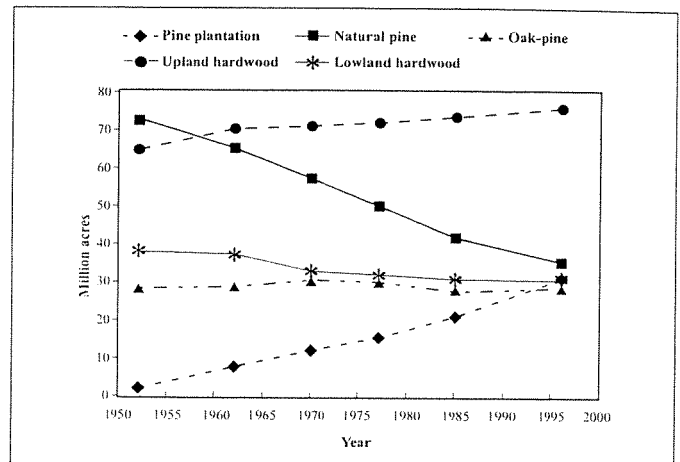


Fig. 2. Changes in extent of general forest types in the South, 1952-1996.

Upland stands were undergoing changes also. Pioneering pines had invaded much of the previously abandoned cropland. Natural plant succession progresses from early successional pines to more shade-tolerant hardwoods that develop in understories of pine stands. With natural succession and harvesting, many stands of naturally-occurring pines reverted to mixed pine-hardwood or upland hardwood stands. Forest surveys from 1952 to 1996 (Sheffield and Dickson 1998) showed that area in natural pines decreased by about one half, from about 72 million acres to about 36 million acres. During this period, the total area in mixed hardwood-pine remained about the same (28-30 million acres). There was some gain in this type from natural stand development after harvesting of natural pine stands. Losses in this type were experienced from harvesting and natural hardwood succession or conversion to pine plantations. Related to this was the increase of upland hardwoods by about 15%. From 1952 to 1996 upland hardwoods increased from about 65 million acres to about 75 million acres. But the biggest proportional change in southern forestland during this period was the increase in pine plantations. Area in pine plantations increased from less than 2 million acres in 1952 to over 30 million acres in 1996 (Fig. 2).

There were changes in tree harvesting also. Between 1952 and 1962 total annual softwood harvests declined slightly. During this period annual production of softwood pulpwood increased 35%. But softwood sawlog production decreased by 30% as hundreds of large and portable small sawmills shut down as the region experienced a major shift from lumber to pulp and paper production (USDA Forest Service 1988). But during the next 2 decades (1962 to 1985) softwood harvests increased by 5.0 billion cubic feet (77%) as the

pulp and paper industry expanded, the lumber industry was revitalized, and a pine plywood industry developed.

There have been changes in hardwood roundwood harvest also (USDA Forest Service 1988). Between 1952 and 1976 annual harvests varied little (1.7 -1.8 billion cubic feet). But by 1984 harvests had jumped to 2.5 million cubic feet. Hardwood pulpwood, insignificant

in 1952, had become the leading hardwood product, accounting for 40% of the annual harvest. Fuelwood consumption also increased dramatically at the end of this period, accounting for 27% of hardwood use.

The southern landscape, its human inhabitants, its forests, and its wildlife, had undergone substantial changes. The following chapter describes the forests.

